

Sequestration Program

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National Energy Technology Laboratory

Where Energy Challenges Converge and Energy Solutions Emerge

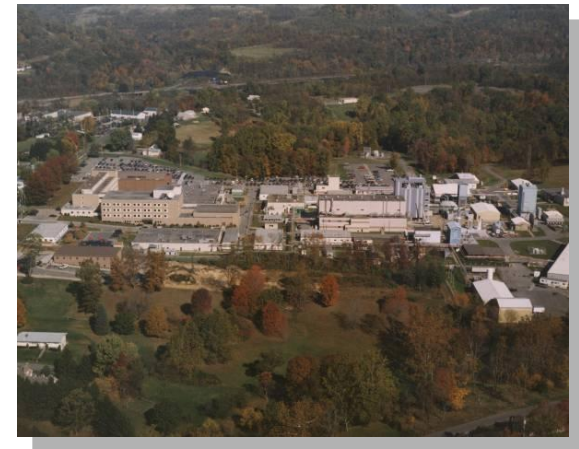
- Only government owned & operated DOE national lab
- Dedicated to energy RD&D, domestic energy resources
- Fundamental science through technology demonstration
- Unique industry – academia – government collaborations
- Locations: Pittsburgh, PA; Morgantown, WV; Albany, OR; Sugar Land, TX; Fairbanks, Alaska



Oregon

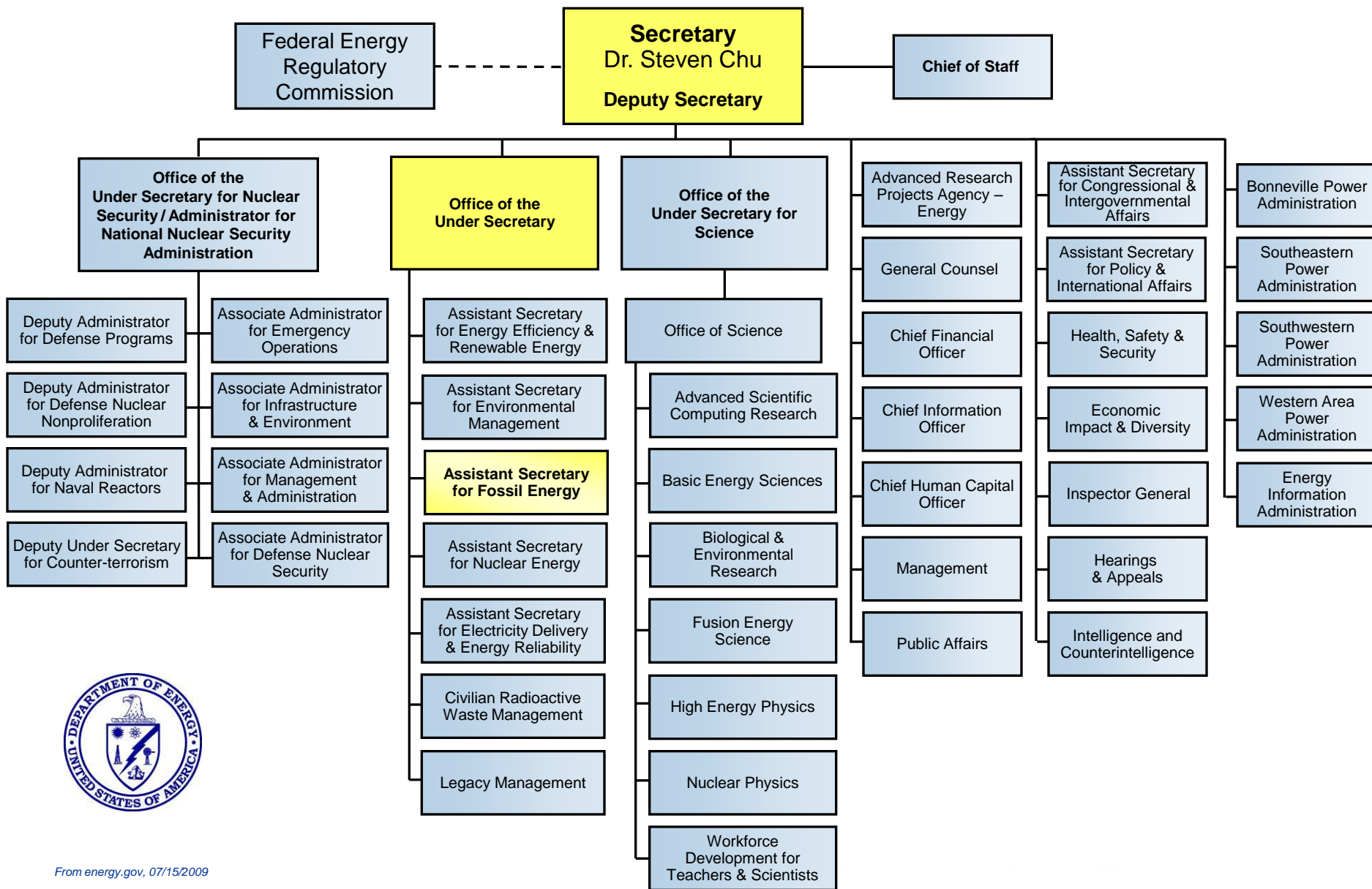


Pennsylvania



West Virginia

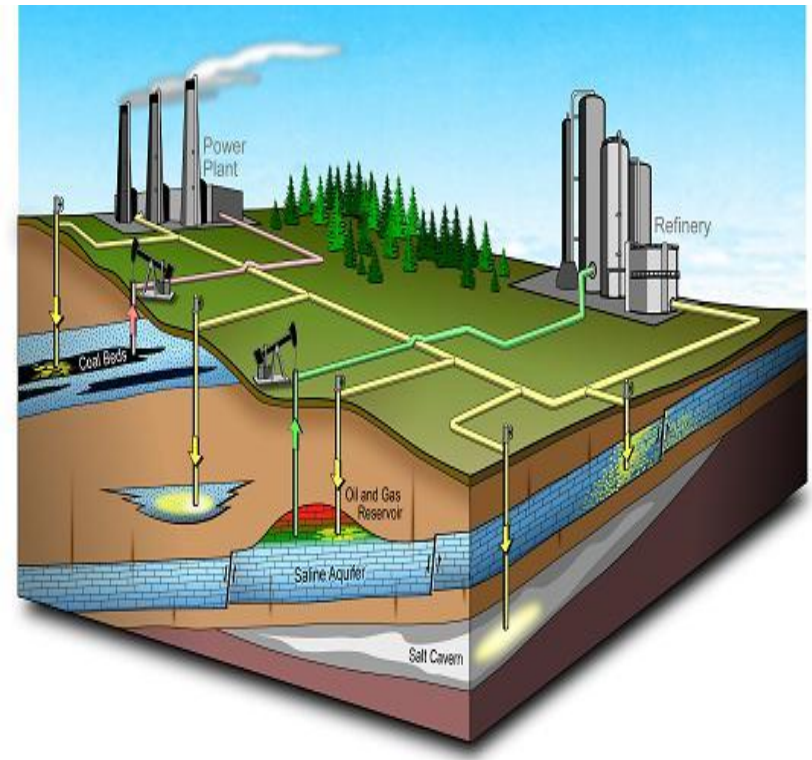
Department of Energy



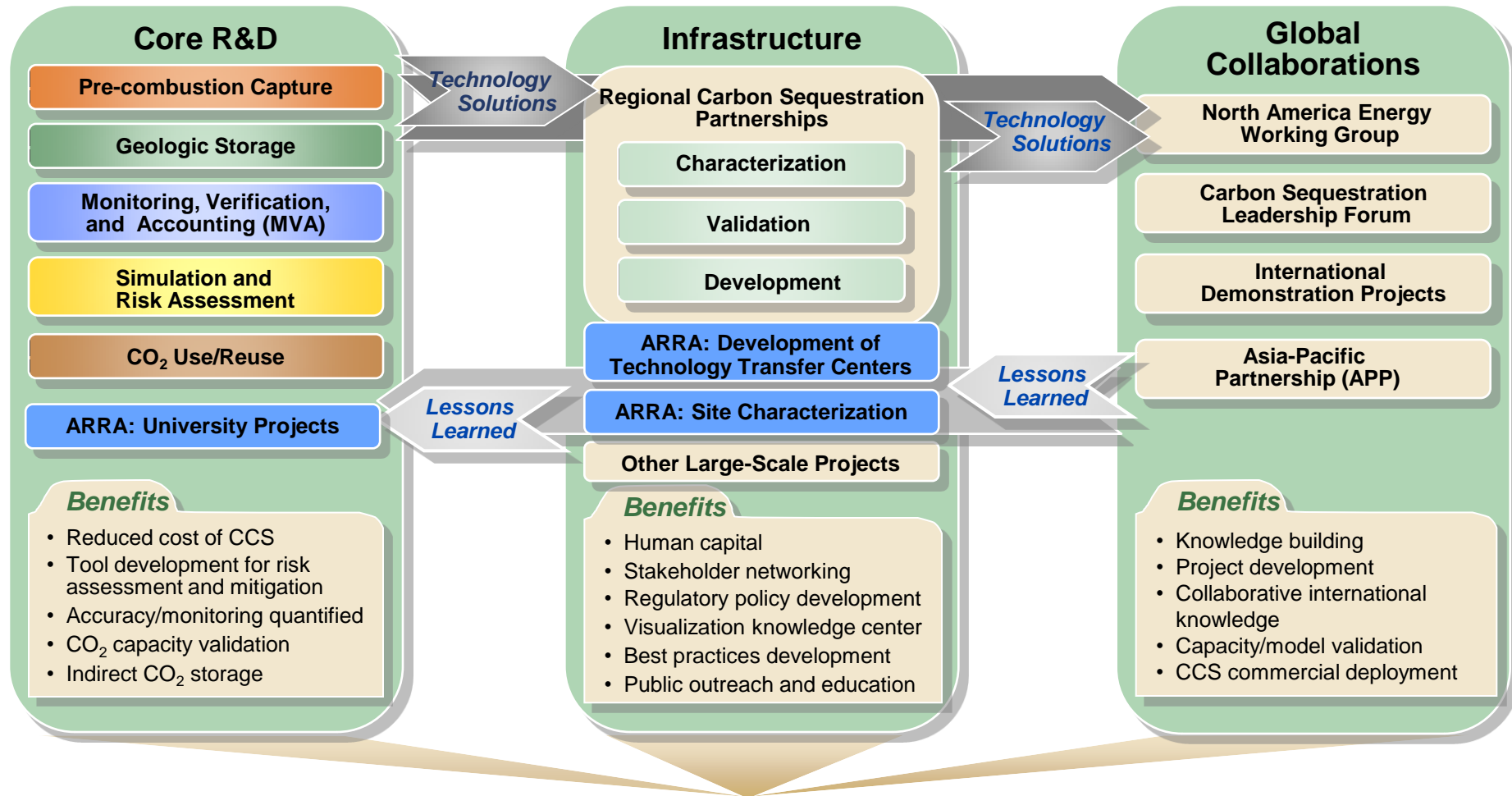
Carbon Sequestration Program Goals

Develop Technology Options That...

- Deliver technologies & best practices that provide Carbon Capture and Safe Storage (CCSS) with:
 - 90% CO₂ capture at source
 - 99% storage permanence
 - < 10% increase in COE
 - Pre-combustion capture (IGCC)
 - < 35% increase in COE
 - Post-combustion capture
 - Oxy-combustion



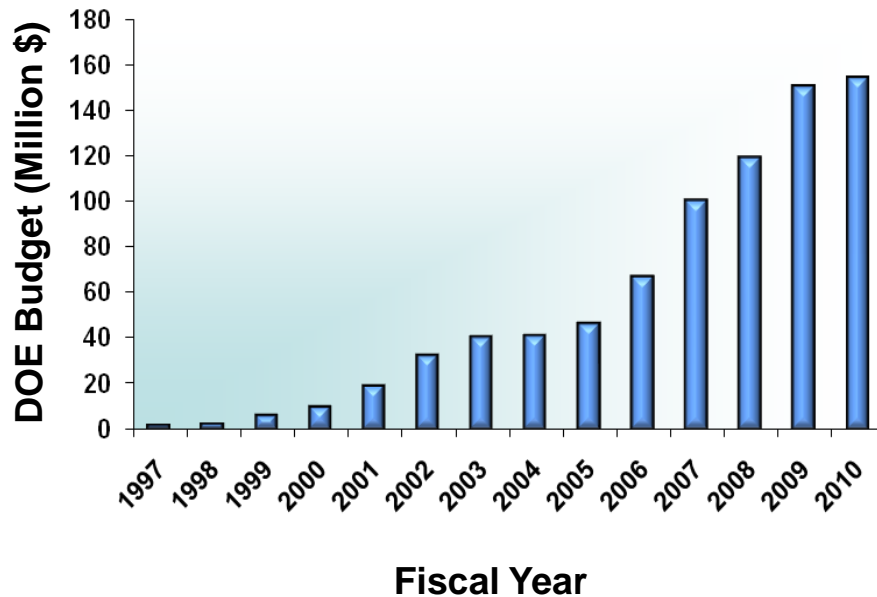
CARBON SEQUESTRATION PROGRAM with ARRA Projects



Demonstration and Commercialization Carbon Capture and Storage (CCS)

Sequestration Program Total Funding

Program Statistics 2010

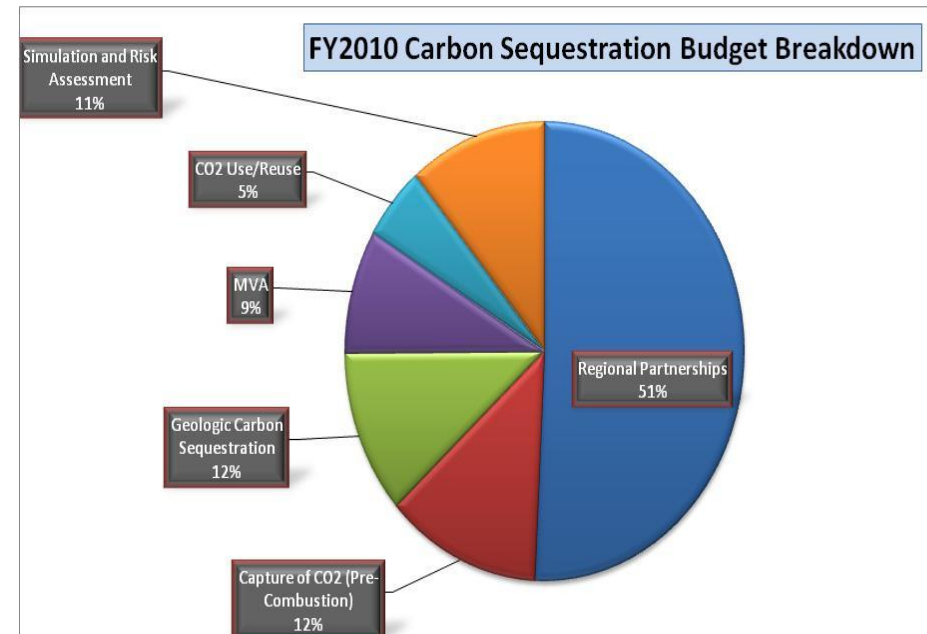


Diverse research portfolio

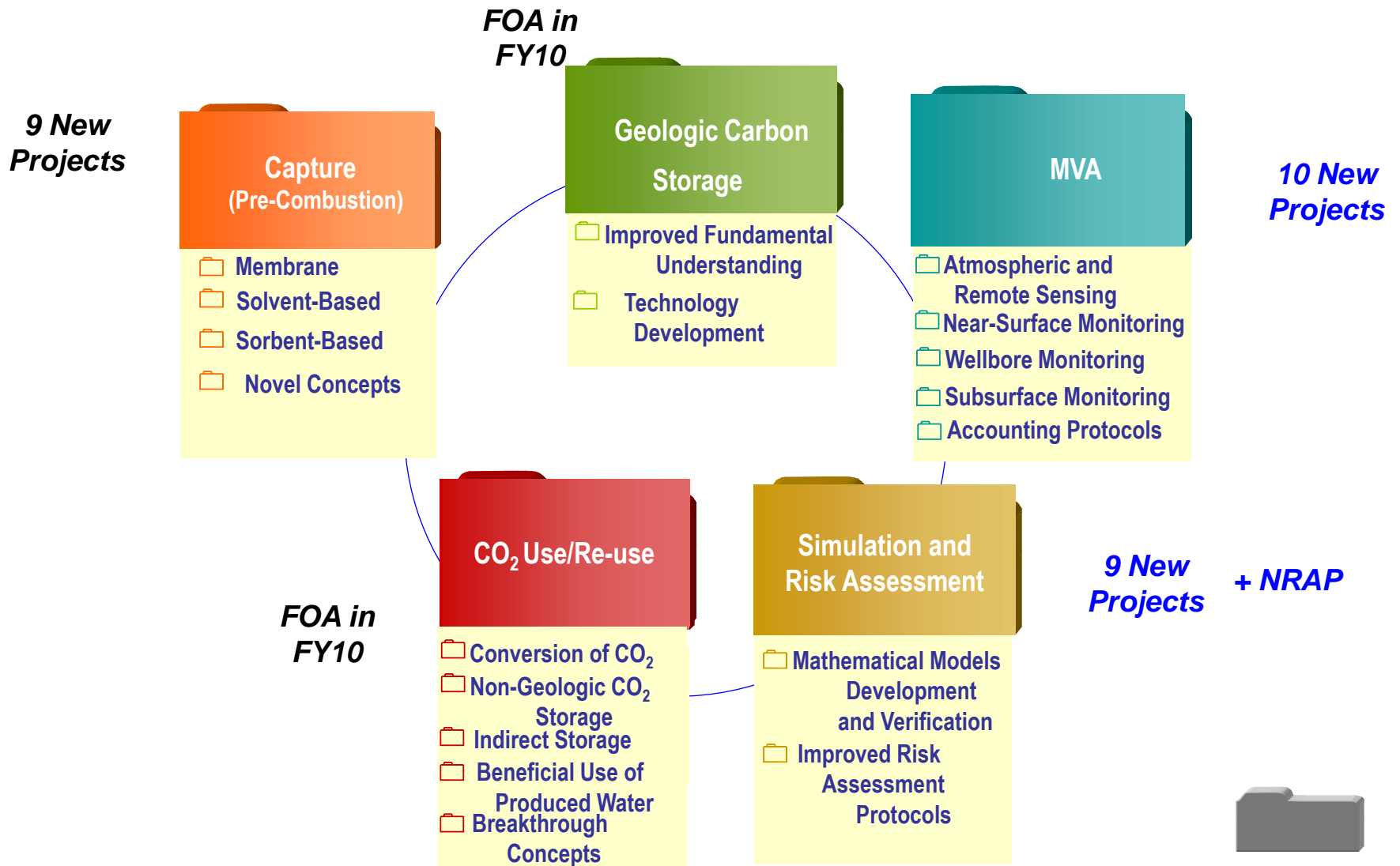
*~ 80-100 Active R&D Projects
+ 60 ARRA Projects*

**Strong industry support
~ 39% cost share across all
projects**

**MVA, Simulation and Risk
Assessment ~ 20% of FY10
Budget**



Core R&D Focus Areas and Supporting Research Pathways



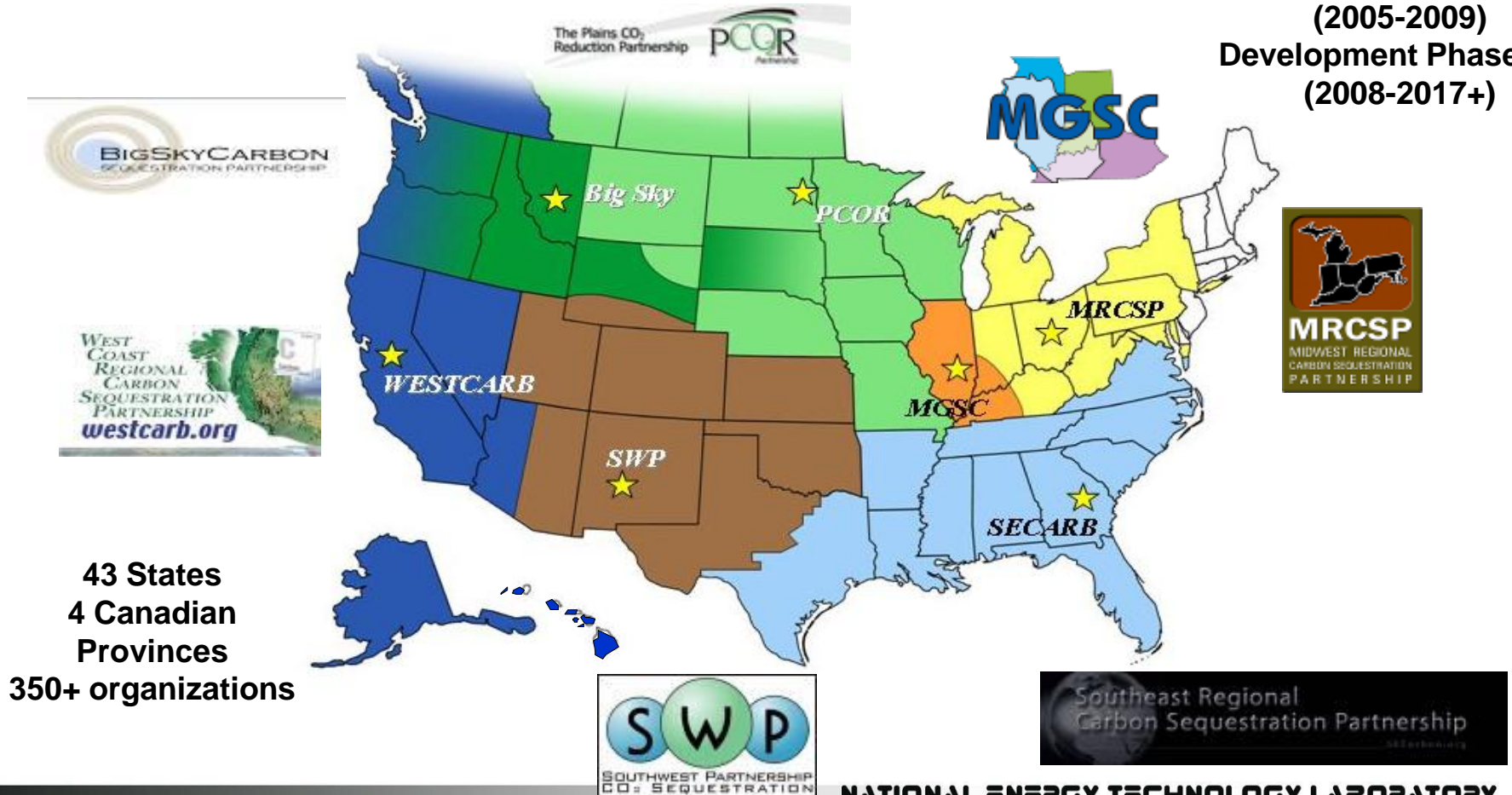
Regional Carbon Sequestration Partnerships

“Developing the Infrastructure for Wide Scale Deployment”

**Characterization Phase
(2003-2005)**

**Validation Phase
(2005-2009)**

**Development Phase
(2008-2017+)**



CCS Best Practice Manuals Appearing Critical Requirement For Significant Wide Scale Deployment -Capturing Lessons Learned



Best Practices Manual	Version 1 (Phase II)	Version 2 (Phase III)	Final Guidelines (Post Injection)
Monitoring, Verification and Accounting	2009	2017	2020
Site Characterization	2010	2016	2020
Simulation and Risk Assessment	2010	2017	2020
Well Construction, Operations and Completion	2010	2017	2020
Regulatory Compliance	2010	2016	2020
Public Outreach and Education	2009	2016	2020
Terrestrial	2010	2016 – Post MVA Phase III	

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